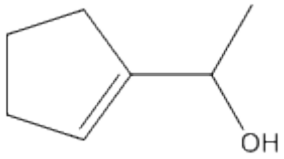

Formation of 1-cyclopenten-1-ylethanol from the reaction of excess allylmagnesium chloride with 3-butyn-2-ol.

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This compound, was a byproduct of the reaction of excess allyl magnesium chloride with the internal alkyn carbon of 3-butyn-2-ol, yielding 3-methylene-5-hexen-2-ol [1]. This compound is postulated to arise from intra molecular cyclo addition of an intermediate vinyl carbanion to the terminal vinyl group of the intermediate, followed by hydrolysis.

b.p. 76º (22mm)

The infrared spectrum (neat) showed bands at 3400 (s), 3030 (w), 2960 (s) 2900 (s), 2850 (s), 1640 (w), 1440 (m), 1400 (m), 1370 (m), 1310(m), 1290 (m), 1250 (m),1205 (w),1100 (w), 1155(m),1070 (s), 1040 (m), 1025 (m), 1005 (m) 990(m), 945(m), 910(w), 890 (w), 850 (w) and 820(m), cm^{-1}.

The pmr spectrum (60MHz), $CDCl_3$, showed a doublet at δ 1.25 (3H, J= 6Hz, methyl), a multiplet at 2.10 (6H, aliphatics), a broad singlet at 3.45 (1H, hydroxyl), a quartet centered at 4.25 (1H, J= 6Hz, methine), and a multiplet centered at 5.40 (1H,internal olefinic).

Reference:

1. John H. MacMillan and Alfred Viola,

"Addition of unsaturated propargyl, allyl and benzyl Grignard Reagents to acetylenic or allylic alcohols.", internet archive, 2012.

http://www.ccl.net/cca/documents/MacMillan_Papers/Addition_of_propargyl__allyl_and_benzyl_Grignard_reagents_to_alpha_beta_unsaturated_alcohols.pdf